KEY TO MAJOR GROUPS OF SOUTHERN AUSTRALIAN MARINE PLANTS THAT ARE ATTACHED TO ROCKS AND SEDIMENTS (BENTHIC PLANTS).
(this excludes the microscopic floaters or planktonic plants)

1a. Plants grow in sand and mud. Leaves are green, often grass-like, and veins (vascular tissue) are present. Runners (rhizomes) below the sediment produce roots. Flowers and fruit may be present.

          Phylum (or Division) Magnoliophyta (fig. 1)
          — the Flowering Plants (Seagrasses)

1b. Plants are attached to rock (lithophytic) or other organisms (epiphytic). True veins, stems, leaves and roots absent, although some plants have flattened leaf-like parts of varying colors with mid-ribs resembling veins, and some have runners and branched attachment organs (holdfasts) resembling roots.

          (go to step) 2

2a. Plants found on rock just above high tide, pale green or blue-grey-green or black in color, forming dry, rough, circular crusts on rocks just above high tide, some changing to rusty red or orange as they dry out in summer (fig. 3)

          Phylum: Lichenes — the marine lichens

2b. Plants on rock in the intertidal or subtidal regions or growing on other organisms, of various colors.

          (go to step) 3

3a. Plants grassy-green to dark leafy-green. When viewed under the microscope, cells larger than about 1μm wide that contain nuclei can be seen (fig. 4)

          Phylum (or Division) Chlorophyta— the Green Algae

3b. Plants dark olive-green, grey-green or blackish, forming films or jelly-like blobs on rocks and other organisms, slippery when wet. When viewed under the microscope, colonies of tiny threads or groups of cells of bacterial size (about 1μm wide) that do not contain nuclei, set in jelly, can be seen (fig. 5)

          Phylum: Cyanoprokaryota — the Blue-green Algae/Bacteria

3c. Plants red, pink, light or dark brown, khaki or a yellowish color. When viewed under the microscope, cells larger than about 1μm wide that contain nuclei can be seen. (go to step) 4

4a. Plants often large and leathery, yellow or khaki or olive brown or dark brown to almost black in color, usually plentiful on rocks in shallow water and the lower part of the intertidal (fig. 6)

          Phylum (or Division): Phaeophyta (Heterokontophyta)
          The Brown Algae

4b. Plants delicate, membranous or leathery, or limy and stony (calcareous), red, red-brown, pink to purplish in color, or bleached yellow in shallow water, growing on rock or other organisms, sometimes at depth (fig 7-)

          Phylum (or Division) Rhodophyta
          the Red Algae

Fig. 1: Eel grass showing the runner (rhizome), Whyalla, S.A.

Fig. 2: Red and green algae, Robe S.A.

Fig. 3: lichens drying to a rust red crust, Pt Souttar, SA

Fig.4: green algae (Caulerpa brownii), amongst brown algae 2m deep at Cape Jervis, S.A.

Fig. 5: microscopic views at different magnifications of threads of blue-green algae, Pt Pirie, SA

Fig. 6: a mix of brown algae (Ecklonia and Cystophora), in a rock pool, Pondalowie Bay, SA

Fig. 7 a red coralline alga encrusting a pebble, Aldinga, SA

Fig. 8: mass of red algae, mainly Melanthalia, 2m deep, Pt Elliot, SA

Fig. 9: the red alga Sarcomenia, from Robe, SA

“Algae Revealed” R N Baldock, S Australian State Herbarium, May 2009